Abstract

Title: Consequences of experimentally induced perinatal cerebral ischemic lesion.

Aim: This thesis aims to present the issues and analyze current knowledge in the field of perinatal brain damage, particularly perinatal cerebral ischemic lesions as the most common brain infarction in children. Basic characteristics of the disease, syndromology, pathophysiological mechanisms and risk factors are emphasized. Following the theoretical background the thesis analyzes current trends as well as the limitations of the diagnostics and therapy. The aim is to highlight the need for early diagnosis and emphasize the potential of preventive treatment strategies. The practical part follows the theoretical background and expands the topic on the analysis of motor and behavioral consequences of experimentally induced perinatal ischemic stroke.

Method: Cerebral focal ischemia was induced experimentally by photothrombotic method to seven days old rats. Rose Bengal intravenously followed by continual illumination of the senzorimotor cortex using a green laser beam for 10 minutes was induced platelet aggregation and subsequent thrombosis. Eight animals at age of two months were evaluated for 7 days via observational cages PhenoTyper.

Results: The theoretical part collected and processed theoretical data on the perinatal syndromology focused on cerebral ischemia from currently available studies and researches in specialized databases. The topic has been discussed in terms of pathophysiology, epidemiology, risk factors, diagnosis and therapy.
In the practical part lesion located to sensorimotor cortex of the left hemisphere was induced. Motor and behavioral changes in comparison with the control group were evaluated through phenotyping cage.

Key words: Rat, focal cerebral ischemia, perinatal, motor deficit.